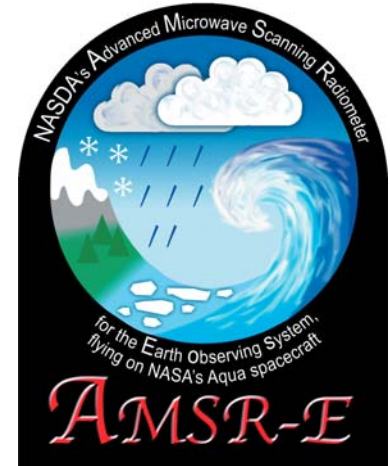




National Snow and Ice Data Center
Supporting Cryospheric Research Since 1976



Status of AMSR-E at NSIDC

Melinda Marquis

NSIDC Product Team Lead, AMSR-E

Joint AMSR-E Science Team Meeting

Ft. Collins, CO

Aug. 3, 2004

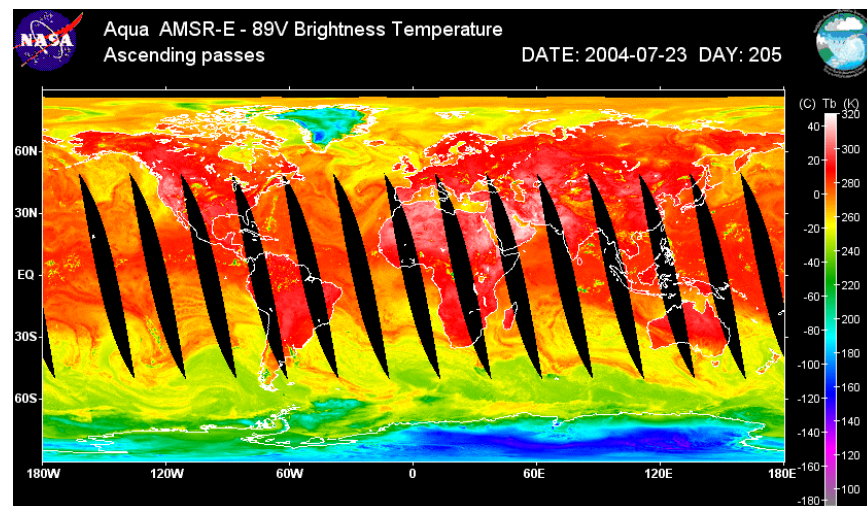


Aqua/AMSR-E Outline

- Aqua/AMSR-E Status of Current Operations
- Ordering AMSR-E Data: via EDG, Data Pool, SNOWI and V0 sidads
- Tools for AMSR-E data users
- AMSR-E Distribution Stats
- Outreach
- Questions for Science Team

L2A 89.0 GHz Brightness Temperatures

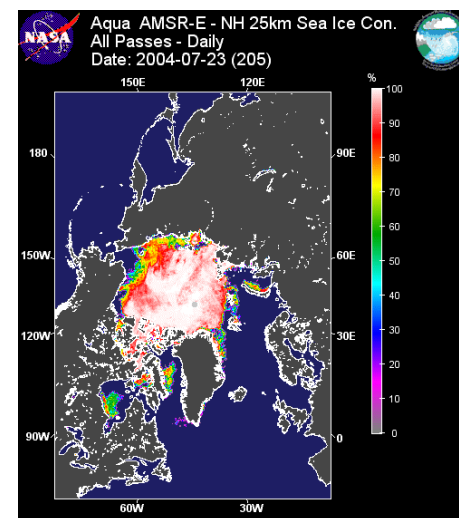
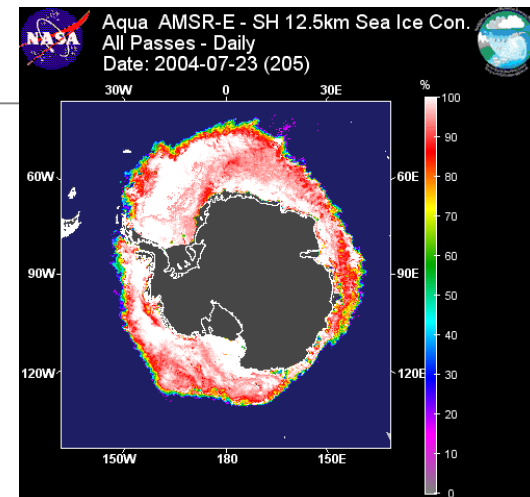
The AMSR-E sensor measures microwave energy radiated from the Earth's atmosphere and surface at six frequencies (6.9, 10.7, 18.7, 23.8, 36.5, and 89.0 GHz) and two polarizations. These radiance measurements are used to compute **brightness temperatures**, which are then resampled to provide data on a set of common spatial resolutions. Brightness temperatures are then used to produce the other geophysical products. Image courtesy of Matt Smith, Univ. of Alabama.



AMSR-E Current Operations

We're ingesting and distributing:

- L1A Raw Observation Counts
- L2A TBs
- L2B and L3 Products:
 - Rain
 - Ocean
 - Land/Soil moisture
 - Snow
 - Sea Ice



L3 Daily 12.5 Km Sea Ice Concentration

Because Arctic sea ice consists largely of multiyear ice floes while Antarctic sea ice is primarily seasonal, different algorithms for computing **sea ice concentration** are used in these two regions. Ice temperature and snow cover are also computed for sea ice. Images courtesy of Matt Smith, Univ. of Alabama.

Improved Algorithms

Beginning 12 May 2004, NSIDC began distributing the following products with improved algorithms (B02):

AE_Rain

AE_RnGd

AE_SI6

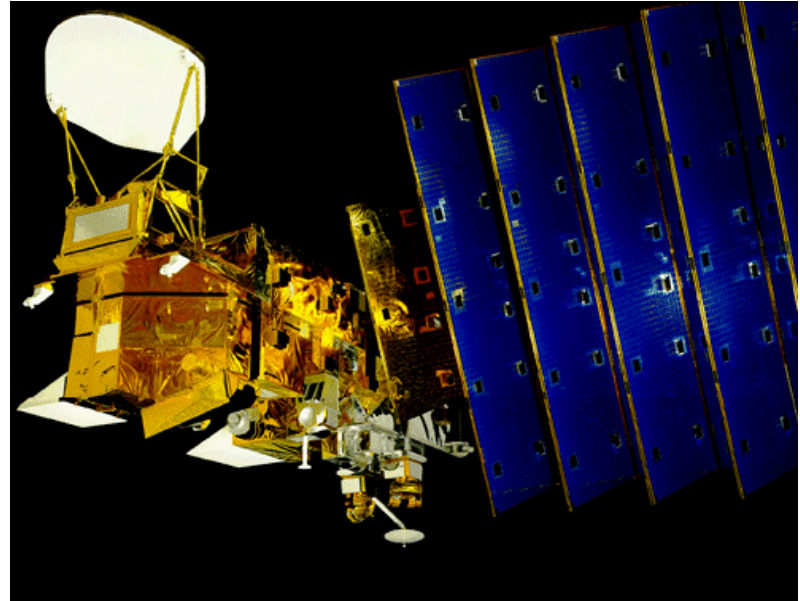
AE_SI12

AE_SI25

AE_DySno

AE_5DSno

AE_MoSno



We're ingesting the current (near-real-time) data, as well as the historical data (from June 2002 forward).

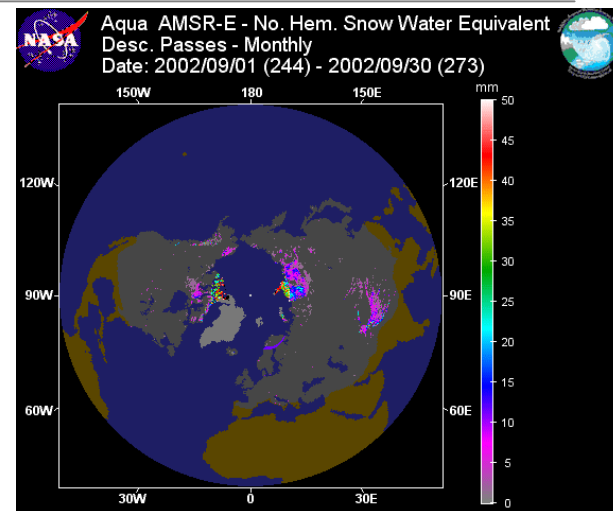
Ordering AMSR-E Data from NSIDC

- **Standard Products:**

- **Data Pool:** All AMSR-E products are retained for 160 days (at the present).
- **EOS Data Gateway:** This interface provides access to the entire archive of data. Provides access to HEW subsetter.
- **Search 'N Order Interface (SNOWI):** This tool provides a quick and simple way to search and order limited products from NSIDC and other Distributed Active Archive Centers (DAACs).

- **Preliminary (“NRT”) Data:**

- Registration is required to access the most recent eight days of data via FTP. These data are on a V0 (non-ECS) server.



L3 Monthly Snow Water Equivalent (SWE)

AMSR-E can be used to measure snow cover area as well as its volume, or “**snow water equivalent**” (SWE). Successful estimation of SWE is still at a developmental stage and requires model estimations of snow grain size and density. Image courtesy of Matt Smith, Univ. of Alabama.

<http://nsidc.org/data/amsr/order.html>

AMSR-E Data: Standard and Preliminary (Near-Real-Time) Data Products

STANDARD DATA PRODUCTS

- L0 Science, Engineering, and GBAD Data
- L1A Raw Sensor Counts
- L2A Swath Brightness Temperatures (Tbs)
- L2B Ocean Products
- L2B Soil Moisture Products
- L2B Rainfall Products
- L3 Daily Ocean Grids
- L3 Weekly Ocean Grids
- L3 Monthly Ocean Grids
- L3 Daily Snow Water Equivalent EASE-Grid
- L3 5-Day Snow Water Equivalent EASE-Grid
- L3 Monthly Snow Water Equivalent EASE-Grid
- L3 Daily 6.25 km 89 GHz Tbs Polar Grids
- L3 Daily 12.5 km Tbs, sea ice concentrations, & snow depths over sea ice
- L3 Daily 25 km Tbs, sea ice concentrations & sea ice temperatures
- L3 Soil Moisture Products
- L3 Monthly Rainfall Grids
- Browse

NEAR-REAL-TIME PRODUCTS

- ***
- ***
- L2A Swath Brightness Temperatures (Tbs)
- L2B Ocean Products
- L2B Soil Moisture Products
- L2B Rainfall Products
- L3 Daily Ocean Grids
- ***
- ***
- L3 Daily Snow Water Equivalent EASE-Grid
- ***
- ***
- L3 Daily 6.25 km 89 GHz Tbs Polar Grids
- L3 Daily 12.5 km Tbs, sea ice concentrations, & snow depths over sea ice
- L3 Daily 25 km Tbs, sea ice concentrations & sea ice temperatures
- L3 Soil Moisture Products
- ***
- ***

Tools for AMSR-E Data

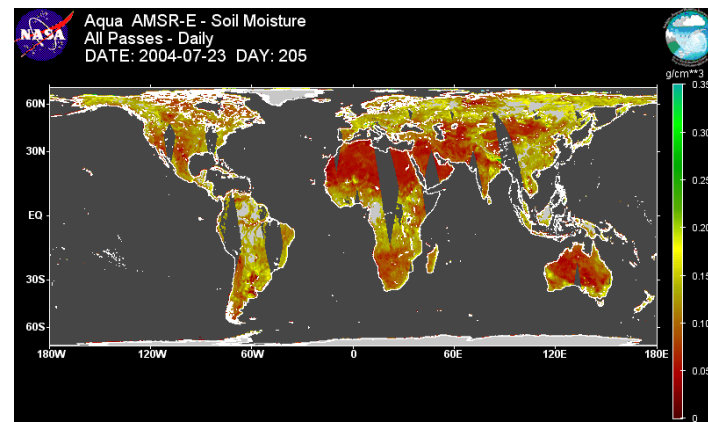
- [AMSR-E Swath to Grid Toolkit \(AS2GT\)](http://nsidc.org/data/tools/pmsdt/as2gt.html):
<http://nsidc.org/data/tools/pmsdt/as2gt.html>
 - subset and grid Level-1B and Level-2A AMSR-E swath data.
 - makes it easy to process data into custom grids with any temporal or spatial resolution.
 - part of the NSIDC Passive Microwave Swath Data Tools (PMSDT).
 - When you download the software, you get AS2GT as part of the larger package that will also allow you to work with some forms of SSM/I and SMMR data

- [HEW](#) subsets L2A, L2B and L3 products (minus the L2B soil moisture, which is point format); via the EDG.

- [Land masks](#): AMSR-E land masks incorporated into the 6.25, 12.5, and 25 km resolution sea ice products are available as separate arrays in HDF format at each resolution. The land masks are in a polar stereographic projection.

- [Hierarchical Data Format - Earth Observing System \(HDF-EOS\)](#): NSIDC created this site to answer common questions about HDF-EOS and to provide simple methods for working with the HDF-EOS format. Tools are provided to convert from HDF-EOS to binary, and to dump HDF metadata into ASCII text.

AMSR-E Tools Page at
<http://nsidc.org/data/amsr/tools.html>



L3 Daily Soil Moisture

Microwave observations are sensitive to **soil moisture** through the effects of moisture on the dielectric constant and hence emissivity of the soil. In determining soil moisture, the model inversions include corrections for variable vegetation water content and surface temperature effects. Image courtesy of Matt Smith, Univ. of Alabama.

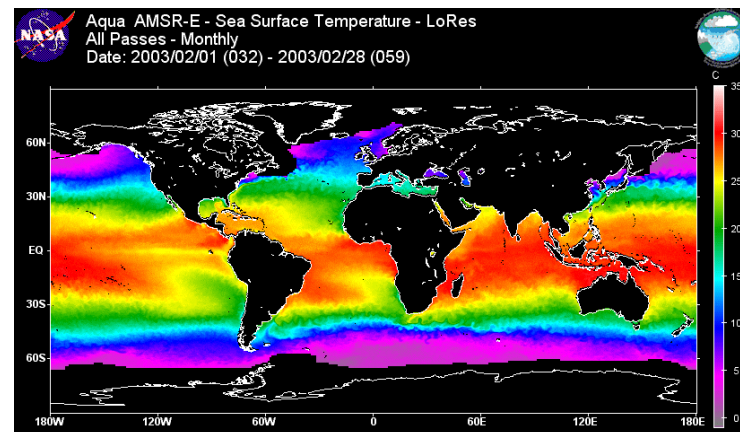
AMSR-E Distribution Statistics – From EDG Only

Data Distributed via EDG (NOT include DP)

Data Type	#Grans
AMSREL1A	910
AE_L2A	118,654
AE_Ocean	218
AE_Rain	223
AE_Land	918
AE_SI6	103
AE_SI12	543
AE_SI25	1,226
AE_DySNO	242
AE_5DSNO	33
AE_MoSNO	14
AE_DyOcn	28
AE_WkOcn	6
AE_MoOcn	14
AE_Land3	1,064
AE_RnGd	5

NOTE: These are not necessarily unique users.

Thanks to Michelle Holm for stats.



L3 Monthly Ocean

Radiative transfer models are used at and above the ocean surface to relate brightness temperatures to a suite of geophysical parameters based on microwave signals from the surface (**sea surface temperature** and **wind speed**) and the atmosphere (**water vapor** and **cloud liquid water**). Image courtesy of Matt Smith, Univ. of Alabama.

AMSR-E Distribution Statistics – From Data Pool Only

Product # Grans

AE_5DSno	57
AE_DyOcn	24
AE_DySno	150
AE_L2A	49358
AE_Land	108
AE_Land3	778
AE_MoOcn	1
AE_MoSno	4
AE_Ocean	3343
AE_Rain	41
AE_RnGd	10
AE_SI12	103
AE_SI25	17
AE_SI6	107
AE_WkOcn	2
AMSREL1A	38469
(blank)	
Grand Total	92572

These stats are for dist
from Data Pool Only.



Thanks to Michelle Holm for stats.

AMSR-E Distribution Statistics -- # of Requests

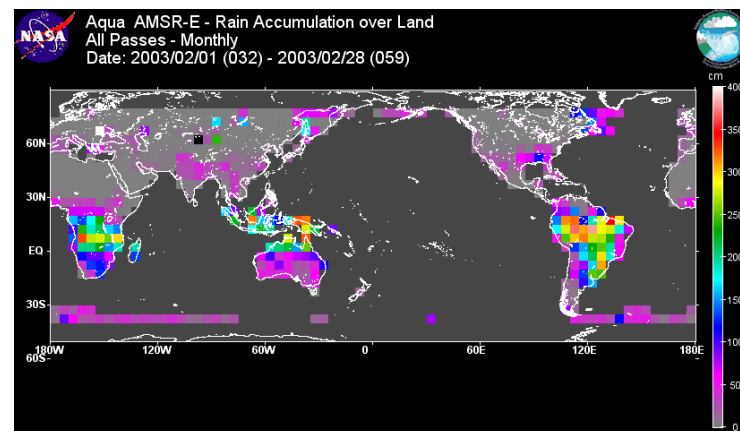
# of Requests	Title					
4	AMSR-E/AQUA L0 Science and Engineering Data (APID 402) Parm's, & QC EASE-Grid					
51	AMSR-E/AQUA L1A Raw Observation Counts					
2761	AMSR-E/AQUA L2A Global Swath Spatially-Resampled Brightness Temperatures (Tb)					
6	AMSR-E/AQUA L2B Global Swath Ocean Products Derived from Wentz Algorithm (Tb)					
12	AMSR-E/AQUA L2B Global Swath Rain Rate/Type GSFC Profiling & Ferraro Algorithms					
11	AMSR-E/AQUA L2B Surface Soil Moisture, Interpretive Parm's. & QC EASE-Grids					
10	AMSR-E/AQUA Daily L3 6.25 km 89GHz Brightness Temperature (Tb) Polar Grids					
12	AMSR-E/AQUA Daily L3 12.5 km Tb, Sea Ice Conc., & Snow Depth Polar Grids					
13	AMSR-E/AQUA Daily L3 25 km Tb, Sea Ice Temperature, & Sea Ice Conc. Polar Grids					
39	AMSR-E/AQUA Daily L3 Snow Water Equivalent EASE-Grids					
16	AMSR-E/AQUA 5-Day L3 Global Snow Water Equivalent EASE-Grids					
5	AMSR-E/AQUA Monthly L3 Global Snow Water Equivalent EASE-Grids					
1	AMSR-E/AQUA Monthly L3 Global Ascending/Descending .25X.25 Deg. Ocean Grids					
42	AMSR-E/AQUA Daily L3 Surface Soil Moisture, Interpretive Parm's, & QC EASE-Grids					
1	AMSR-E/AQUA Monthly L3 5X5 Deg. Rainfall Accumulationss. & QC EASE-Grids					
76	Preliminary AMSR-E/AQUA L2 and L3 Data					
1	AMSR/ADEOS-II L1A Raw Observation Counts					
3061	Total					

Thanks to Michelle Holm for stats.



AMSR-E Distribution Statistics – User Affiliations

FOREIGN COMMERCIAL	27	
FOREIGN GOVERNMENT	121	
FOREIGN OTHER	132	
FOREIGN UNIVERSITY	124	
NASA	30	
NOAA	11	
US COMMERCIAL	13	
US FEDERAL GOVERNMENT	26	
US GENERAL PUBLIC	1	
US OTHER	9	
US STATE/LOCAL GOVERNMENT	2	
US UNIVERSITY	1286	
Total	1782	
Foreign	404	23%
Domestic	1378	77%
Commercial	40	2%
Research	1451	81%
Other	291	16%



L3 Monthly Rainfall

The ocean provides a relatively homogeneous background which is ideal for observing **rainfall** via its emissivity. The high and variable emissivity of land surfaces, however, complicates the observed signal so that rainfall observations are problematic and must be inferred empirically. Image courtesy of Matt Smith, Univ. of Alabama.

AMSR-E data are very popular. Pushing limits of ECS distribution capabilities.

Thanks to Michelle Holm for stats.

Number of Users of Preliminary Data

<http://nsidc.org/data/amsr/prelim.html>

Users must register for these data.

Served from our non-ECS server.

78 Users



- o **NSIDC Notes**

- Quarterly publication

- o **NSIDC Web Site**

- <http://nsidc.org/daac/amsr/>

- o **Spring AGU poster (Montreal, May) [Co-authors Walt Meier and Marilyn Kaminski]**

- National Snow and Ice Data Center Snow and Ice Products from the Aqua, Terra, and ICESat Earth Observing System (EOS) Satellites
 - Includes:
 - Level 3 Snow Products
 - Level 3 Sea Ice Products

- o **IGARSS Paper [Co-authors Walt Meier and Marilyn Kaminski]**

- Includes:
 - Level 3 Snow Products
 - Level 3 Sea Ice Products

- o **EOS Paper, submitted [Co-authors Walt Meier and Marilyn Kaminski]**

- Includes:
 - Level 3 Snow Products
 - Level 3 Sea Ice Products

Outreach

The First Workshop on EOS Snow and Ice Products will be held near Goddard Space Flight Center in Greenbelt, Maryland, on November 16-17, 2004.

- Will bring together current and potential users of EOS snow and ice standard products from the MODIS, AMSR-E, ICESat, ETM+, and ASTER sensors.
- Themes of the workshop center on the snow and ice products including:
 - validation results
 - integration of EOS snow and ice products into models
 - production of climate data records
 - and the discussion of improvements to data access and availability
- Presentations by data producers will be made
- Demonstrations dealing with the acquisition and use of the products will be provided by NSIDC and the Goddard DAACs.
- All users of EOS data are invited to present posters on their snow- and ice-related results.
- http://nsidc.org/daac/eos_workshop.htm

Question for Science Team

- L1A and L2A have 243 pixels/scan
- L2B and L3 (except L2B rain) have only 196 pixels/scan
- L2B rain has 486 pixels/scan

Will other L2B or L3 products be revised to include
>196 pixels/scan, e.g., 243 pixels/scan?

•BACKGROUND

- Back in 2002, RSS had been removing the beginning and ending of each scan because of distortion in these regions. Then, some scientists asked RSS to leave the edge pixels in the L2A, and RSS obliged them.
- Henceforth, in the L2A product (brightness temps), the lower channels (all but 89 GHz) contain 243 pixels/scan.
- GHCC/the AMSR-E SCF filters out these edge pixels at the beginning and ends of each scan. The L2B and L3 products (except L2B rain) contain the center 196 pixels of each scan. (47 pixels total, 23 and 24 on each end, will be removed from each scan.)
- However, in the last year or so, the various algorithm developers (of the various L2B and L3 products) have been charged with looking at the edge pixels and deciding if these edge pixels should be retained in their products.

Question for Science Team

Geolocation

Per May 19 email from Peter Ashcroft:

- The L2A data format affords us the opportunity to specify only one set of geolocations for all the low channels.
- To the extent that the low channels are offset from each other, the user will have to do the math to calculate the geolocations of the channel they care about using the geolocations that we provide. (This offset is something on the order of a few kilometers.)
- Calculation of the geolocations of the low frequency observations using the JAXA parameters is not trivial.
 - It requires determining the location of the platform at the instant of the observation, noting the vectors that lead from the platform to the high frequency geolocations, and calculating where a new observation vector will hit the earth.



Question for Science Team (Geolocation cont'd)

- Peter feels most users would rather use the low frequency geolocations found in the Level2A format as the geolocations of all the low channels.
- In the past, RSS has simply used the odd-numbered high frequency locations as the low frequency locations.
- In the future, RSS may want to use some different values.
 - Perhaps values calculated using the metadata parameters, or values midway between the high frequency locations (as recommended by Toshi previously). In any case, the Level2A data format only gives us the opportunity to specify one set of low frequency geolocations.

Could this calculation be automated so that users do not have to perform the extra calculation? Or could tool for calculation be provided for NSIDC to distribute to users who want to do this calculation?

Question for Science Team

NSIDC needs a high-level description of algorithm changes, before new products go public. We still don't have this description for the following B02 products, public since May 12!

AE_Rain
AE_RnGd → Chris Kummerow, Ralph Ferraro, Tom Wilheit

AE_SI6
AE_SI12
AE_SI25 → Joey Comiso, Thorsten Markus, Don Cavalieri

AE_DySno
AE_5DSno
AE_MoSno → Richard Kelly

Ex: AE_Rain L2B B01 algorithm with 392 pixels; a newer version (B02) has 486 pixels.

Proposed Mechanism to Solve this Problem

Proposal:

Algorithm developers send to NSIDC a high-level description, e.g., release notes, of a new PGE (improved algorithm) when they send this improved algorithm to the SCF.



Question for Peter Ashcroft

Sea Ice Mask in SST product (L3, lots of areas masked out)

Peter/RSS agreed (Jan. 16 telecon) to include SST in questionable areas and overlay flag, .e.g., 1 bit -- tell users that this bit is questionable, but allows users to see data in marginal ice zones ("possible sea ice")

What is the status of this?

Question for Frank Wentz

- Elena's write up says "Past experience suggests that the 6.9 and 10.7 GHz measurements over land are close to equal."
- But the write up at http://www.ssmi.com/amsr/amsr_data_description.html implies the constraint is applied over oceans.

What did RSS in fact do to come up with the coefficients in the second equation?

- Apply the constraint over ocean and/or land?

Questions for Frank Wentz

- The linear extrapolation uses T_c, C_c (temp, counts - for cold space) and T_e, C_e (earth) to find T_{eff}/C_h (hot).
- This is for some set of colocated observations.

Which channels are used in the extrapolation?

- Just those with frequencies close to the SSM/I and TMI channels, presumably?
- Is this extrapolation done once for each channel? Or is it done every orbit?

Question for Frank Wentz

- Teff is then correlated with the thermister t's to get the coeffs a, b, and c, which are subsequently used to get Teffs from the observed thermister temps.

How often is this done? Each orbit?

Question for Frank Wentz

- Since the temperature of the hot load is non-uniform and each channel "sees" a different depth into the array of pyramids, it seems like the T_{eff} for the channels used to get T_{eff} as a function of thermister temps will not be the same T_{eff} seen by the 6.9GHz channel.

How is this accounted for?

Summary

- Users are ordering data (lots) and tools

- NSIDC is promoting the use of AMSR-E Data

Thanks to the hard work of:

Jason Wolfe – Technical writer

*John Maurer – User Services

*Donna Scott – User Services

*Walt Meier – Scientist

Amanda Paserba – Operations

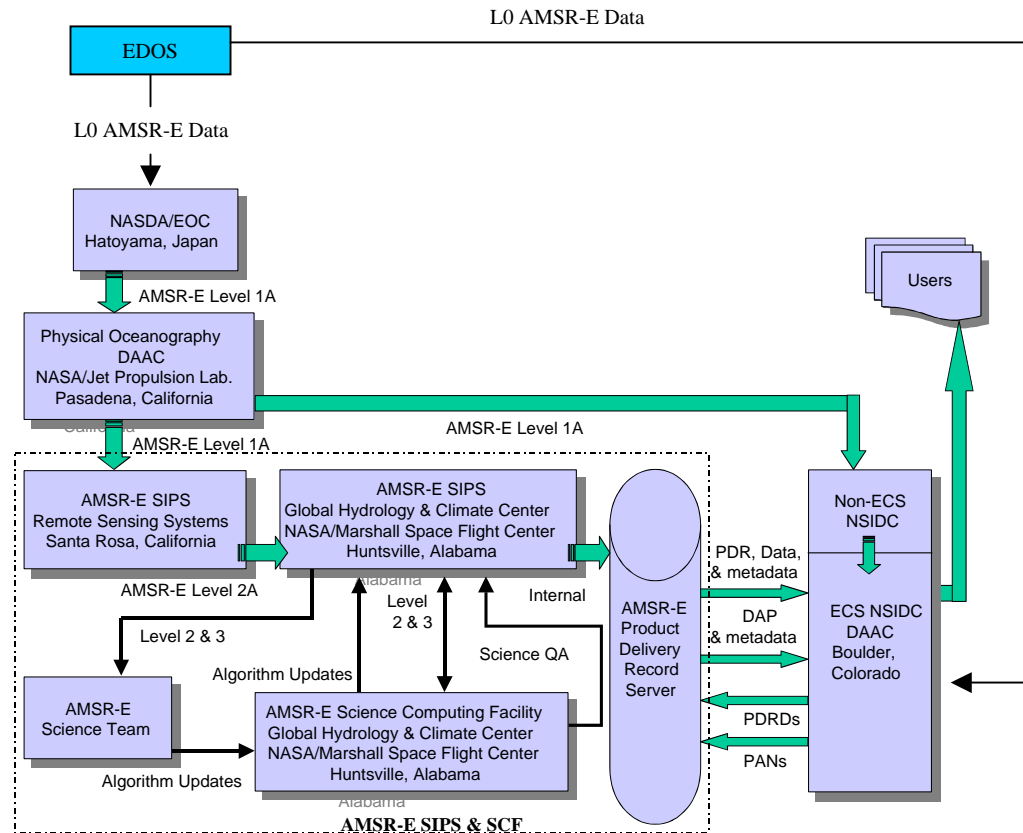
Jeff Smith – Programmer

Siri Jodha Khalsa – Science rep.

*Doug Fowler – Testing

Cathy Fowler – DBA

*Are present at today's meeting



Welcome, new User Services Rep., *Lisa Ballagh

Backup Slides



AMSR-E Data at NSIDC

[Home](#) | [Order Data](#) | [Preliminary Data](#) | [Tools](#) | [News](#) | [FAQs](#) | [Research](#)

Ordering AMSR-E Data from NSIDC

Data Pool: All AMSR-E products are retained for 160 days. See [AMSR-E Temporal Coverage](#).

EOS Data Gateway: This interface provides access to the entire archive of data.

Search 'N Order Interface (SNOWI): This tool provides a quick and simple way to search and order limited products from NSIDC and other Distributed Active Archive Centers (DAACs).

Preliminary FTP Data: Registration is required to access the most recent eight days of data via FTP.

The links in data set titles below provide access to documentation.

Short Name	Data Set Title	Order Options
AMSREL1A	AMSR-E/Aqua L1A Raw Observation Counts	Data Pool SNOWI EOS Data Gateway
AE_L2A	AMSR-E/Aqua L2A Global Swath Spatially-Resampled Brightness Temperatures (Tb)	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_Land	AMSR-E/Aqua L2B Surface Soil Moisture, Ancillary Parm's, & QC EASE-Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_Land3	AMSR-E/Aqua Daily L3 Surface Soil Moisture, Interpretive Parm's, & QC EASE-Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_Rain	AMSR-E/Aqua L2B Global Swath Rain Rate/Type GSFC Profiling Algorithm	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data

AE_RnGd	AMSR-E/Aqua Monthly L3 5x5 deg Rainfall Accumulations	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_Ocean	AMSR-E/Aqua L2B Global Swath Ocean Products derived from Wentz Algorithm	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_DyOcn	AMSR-E/Aqua Daily L3 Global Ascending/Descending .25x.25 deg Ocean Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_WkOcn	AMSR-E/Aqua Weekly L3 Global Ascending/Descending .25x.25 deg Ocean Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_MoOcn	AMSR-E/Aqua Monthly L3 Global Ascending/Descending .25x.25 deg Ocean Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_DySno	AMSR-E/Aqua Daily L3 Global Snow Water Equivalent EASE-Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_5DSno	AMSR-E/Aqua 5-Day L3 Global Snow Water Equivalent EASE-Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_MoSno	AMSR-E/Aqua Monthly L3 Global Snow Water Equivalent EASE-Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_SI6	AMSR-E/Aqua Daily L3 6.25 km 89 GHz Brightness Temperature (Tb) Polar Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_SI12	AMSR-E/Aqua Daily L3 12.5 km Tb, Sea Ice Conc., & Snow Depth Polar Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data
AE_SI25	AMSR-E/Aqua Daily L3 25 km Tb, Sea Ice Temperature, & Sea Ice Conc. Polar Grids	Data Pool SNOWI EOS Data Gateway Preliminary FTP Data

Staggered Release of Data Products – Now Complete

- June 18 began ingesting and distributing **L1A AMSR-E** data.
- Sept. 2 began ingesting and distributing **L2A AMSR-E** into ECS. Also staging L2A on sidads (non-ECS server), rolling archive
- Reprocessed data from June 02-June 03 by Oct. 03, per NASDA
- March 1 we released to the public for the first time, the three L2B products and the six *daily* L3 products:
AE_Ocean L2B Ocean Products
AE_Land L2B Soil Moisture Products
AE_Rain L2B Rainfall
AE_DyOcn L3 Daily Ocean Grids
AE_DySno L3 Daily Snow Water Equivalent EASE-Grid
AE_SI6 L3 Daily 6.25 km 89 GHz Tbs Polar Grids
AE_SI12 L3 Daily 12.5 km Tbs, sea ice concs, & snow depths over sea ice
AE_SI25 L3 Daily 25 km Tbs, sea ice concs & sea ice temps
AE_Land3 L3 Soil Moisture Products

March 3, we released to the public the 5-day snow product:

AE_5DSno AMSR-E/Aqua 5-Day L3 Global Snow Water Equivalent EASE-Grids

March 7, we released to the public the weekly ocean product:

AE_WkOcn AMSR-E/Aqua Weekly L3 Global Ascending/Descending .25x.25 deg Ocean Grids

In April, we released 3 new (L3) data products (all 3 are monthly products):

AE_Rain AMSR-E/Aqua Monthly L3 5x5 deg Rainfall Accumulations

- **AE_MoOcn AMSR-E/Aqua Monthly L3 Global Ascending/Descending .25x.25 deg Ocean Grids**
AE_MoSno AMSR-E/Aqua Monthly L3 Global Snow Water Equivalent EASE-Grids

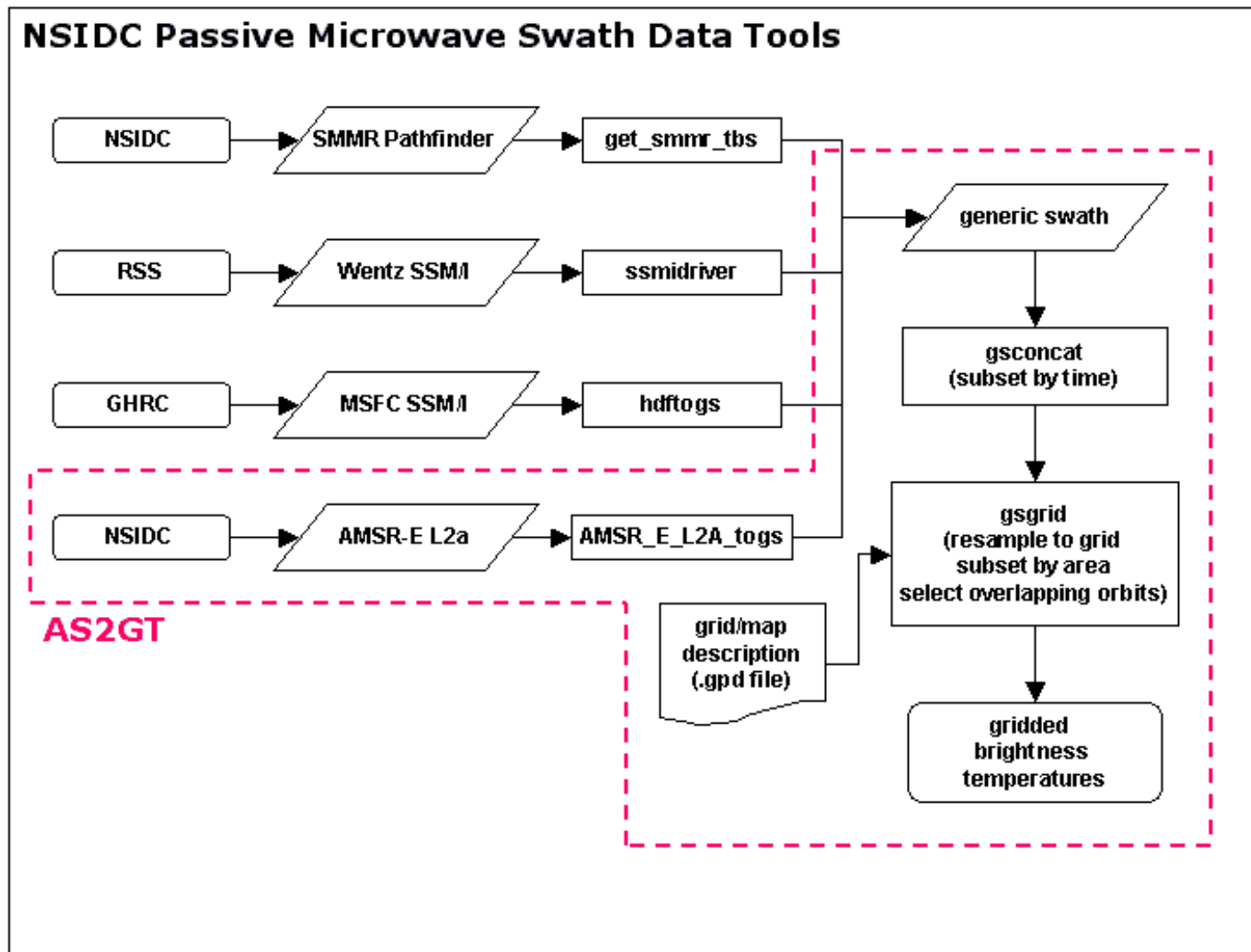
AS2GT: AMSR-E Swath-to-Grid Toolkit

- NSIDC's Ken Knowles developed AS2GT.
- The AMSR-E Swath-to-Grid Toolkit (AS2GT) is a suite of software tools to subset and grid Levels 1B and 2A [AMSR-E](#) swath data.
- AS2GT makes it possible to quickly and easily work with the AMSR-E data in ways that may not be available in the Level 3 gridded data sets.
- This toolkit allows you to process data into custom grids with whatever temporal or spatial resolution you require.
- AS2GT maintains the highest data quality for your application by giving you control over map projection, number of samples per day, input resolution and interpolation method.

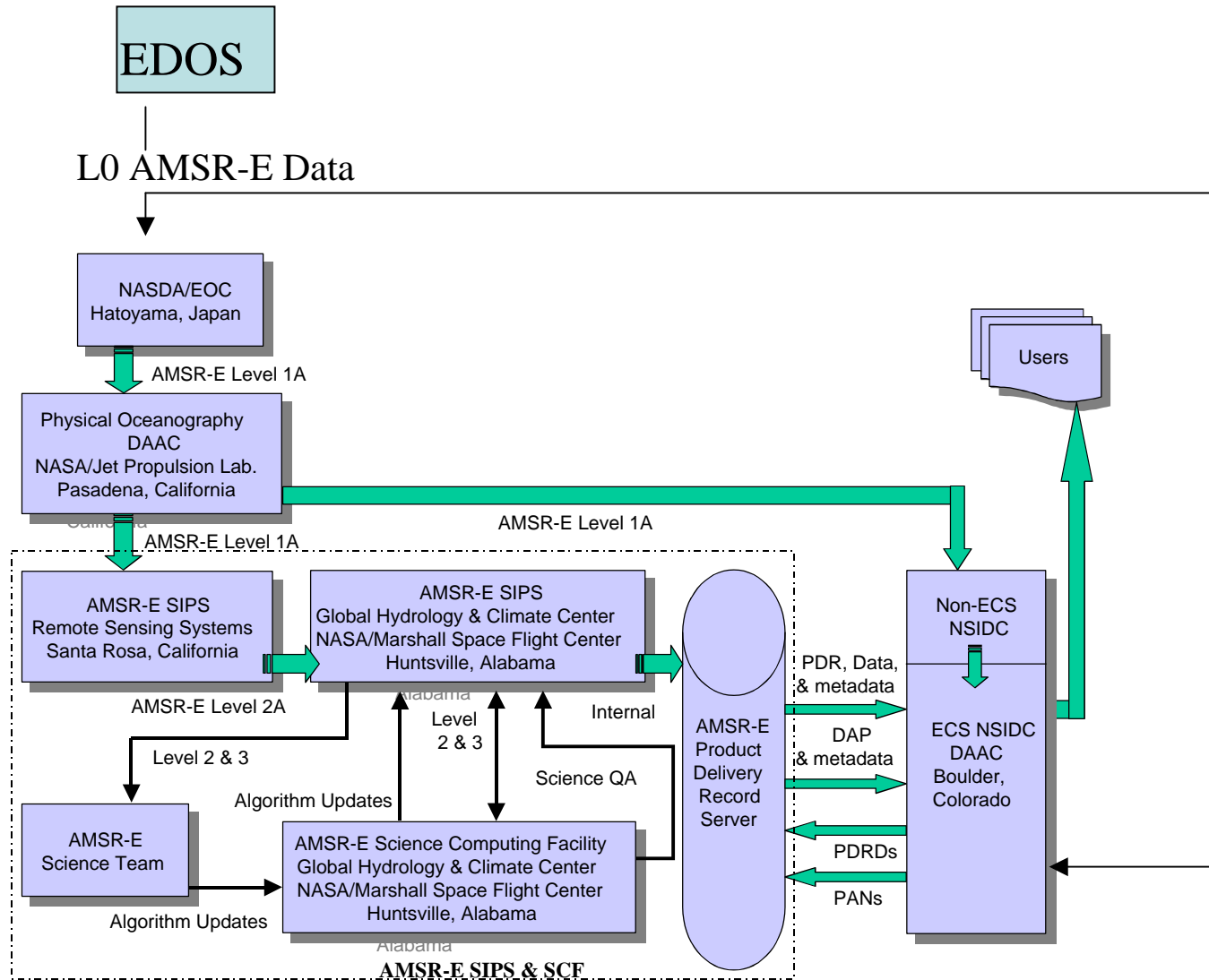
Gridding options in AS2GT include:

- Map projection
- Resolution and grid dimensions
- Resampling method
- How to handle overlapping swaths
- Subsetting by time or region

AS2GT: AMSR-E Swath-to-Grid Toolkit



AMSR-E Data Flow Interfaces



AMSR-E Data Products

Short Name	Data Level	Collection Description	Delivery Frequency	Data Volume uncompressed
PM1GBAD1	Level-0	Ground-Based Attitude Determination Data for EOS Aqua in 1 second intervals	Every two hours	small
PM1GBAD4	Level-0	Ground-Based Attitude Determination Data for EOS Aqua in 4 second intervals	Every two hours	small
PM1GBAD8	Level-0	Ground-Based Attitude Determination Data for EOS Aqua in 8 second intervals	Every two hours	small
AE-PMSCI	Level-0	AMSR-E Science and Engineering Data	Every two hours	1.3 GB/day
AMSR_L1A	L1A	ADEOS-II AMSR L1A Raw Observation Counts	~28 half-orbits / day	1.2 GB/day
AMSREL1A	L1A	Aqua AMSR-E L1A Raw Observation Counts	~28 half-orbits / day	1.2 GB/day

AMSR-E Data Products (cont.)

Short Name	Data Level	Collection Description	Delivery Frequency	Data Volume uncompressed
AE_L2A	Level-2A	Aqua AMSR-E global swath Brightness Temperatures are resampled at resolutions of 57 km, 36 km, 21 km, 11 km, and 5.5 km.	~28 half-orbits / day	2.489 GB/day
AE_Ocean	Level-2B	Aqua AMSR-E global swath ocean wind speed at 36 and 21 km res., water vapor over ocean at 21 km res., cloud liquid water at 11 km res., and sea surface temperature at 57 and 36 km res. generated using the Wentz Algorithm and Level-2A product.	~28 half-orbits /day	277.1 MB/day
AE_Land	Level-2B	Aqua AMSR-E swath surface soil moisture and interpretive parameters including surface type, vegetation water content, surface temperature, and QC parameters are generated from Level-2A AMSR-E TBs spatially resampled to a nominal 25 km equal area earth grid	~28 half-orbits /day	11.9 MB/day
AE_Rain	Level-2B	Aqua AMSR-E global swath rain rate and rain type products are generated using the Level-2A spatially resampled TBs as input. Over ocean the Goddard Profiling Algorithm produces rain rates and types; over land the Ferraro Algorithm is used.	~28 half-orbits /day	497.7 MB/day
AE_RnGd	Level-3	Aqua AMSR-E global monthly global rainfall accumulations are 5 x 5 degree grids generated using the Wilheit Algorithm and Level-2 rain products as input.	1 / month	.005 MB/month
AE_DyOcn	Level-3	Aqua AMSR-E global ocean Level-3 daily products are .25 x .25 degree ascending and descending grids generated using the six Level-2B ocean products as input.	1 / day	14.5 MB/day

AMSR-E Data Products (cont.)

Short Name	Data Level	Collection Description	Delivery Frequency	Data Volume uncompressed
AE_WkOcn	Level-3	Aqua AMSR -E global ocean Level-3 weekly products are .25 x .25 degree ascending and descending grids generated using the six Level-2B ocean products as input.	1 / week	12.4 MB/week
AE_MoOcn	Level-3	Aqua AMSR -E global ocean Level-3 monthly products are .25 x .25 degree grids generated using the six Level-2B ocean products as input.	1 / month	12.4 MB/month
AE_DySno	Level-3	Aqua AMSR -E Level-3 daily product contains global snow water equivalent EASE grids. Snow depth EASE grids are included as research products.	1 / day	4.2 MB/day
AE_5DSno	Level-3	Aqua AMSR -E Level-3 product contains 5-day global snow water equivalent EASE grids. Snow depth EASE grids are included as research products	1 / day	4.2 MB/ 5-day
AE_MoSno	Level-3	Aqua AMSR -E Level-3 product contains monthly global snow water equivalent EASE grids. Snow depth EASE grids are included as research products	1 / month	4.2 MB/ month
AE_WkOcn	Level-3	Aqua AMSR -E global ocean Level-3 weekly products are .25 x .25 degree ascending and descending grids generated using the six Level-2B ocean products as input.	1 / week	12.4 MB/week

AMSR-E Data Products (cont.)

Short Name	Data Level	Collection Description	Delivery Frequency	Data Volume uncompressed
AE_SI6	Level-3	Aqua AMSR-E Level-3 products at 6.25 km contain polar stereographic grids of 89.0 GHz brightness temperatures . Grids are daily averages, daily ascending averages, and daily descending averages.	1 / day	46.3 MB/day
AE_SI12	Level-3	Aqua AMSR-E Level-3 products at 12.5 km are polar stereographic grids of sea ice concentration, snow depth over ice, 18 - 89.0 GHz TBs. The sea ice concentration and TBs are daily, daily asc, and daily desc grids. The snow depth is a 5-day grid.	1 / day	64.6 MB/day
AE_SI25	Level-3	Aqua AMSR-E Level-3 products at 25 km contain polar stereographic grids of sea ice concentration, sea ice temperature, 6.925, 10.65, 18.7, 23.8, 36.5, and 89.0 GHz TBs. Grids are daily averages, daily ascending averages, and daily descending averages.	1 / day	22.4 MB/day
AE_Land3	Level-3	Global surface soil moisture with vegetation water content, surface temperature, and TB parameters are generated on a nominal 25-km equal area earth grid by time-compositing the Level-2B parameters, separately for ascending and descending passes.	1 / day	58.3 MB/day

